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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BARR, MICHAEL E

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 01/02/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/981,587

Applicant(s)

JOSHI, NAYAN H.

Examiner

Michael Barr

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☒ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments and amendments, filed 12/18/02, have been fully considered and reviewed by the examiner. In light of the arguments, the rejections have been withdrawn by the examiner. A new grounds of rejection follows. Claims 1-25 are pending.
2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6 and 10-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson in view of Izaki et al.

Stevenson teaches a method of forming a conductive metal layer on a non-conductive substrate (plastic/composite, polyamide) by cleaning/modifying the substrate with a solution, which would have contained a solvent, then conditioning the substrate with a conditioner, sensitizing the substrate with a solution of SnCl_2 , then activating the surface with an acidic silver salt (AgNO_3) solution, and then electrolessly plating the substrate with an electroless nickel solution (Col. 4, line 18-Col. 7, line 22). The silver salt activator solution of Stevenson does not

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contain any palladium and the teaching of Stevenson shows that no palladium is required by the process.

Stevenson does not teach that the acidic silver salt solution has the claimed pH or that it is aqueous. However, since Stevenson teaches that the activator can be an acid bath of silver nitrate, this is inclusive of the claimed pH (i.e. 6-7) and furthermore, acid baths typically aqueous in nature, and thus would have been an obvious modification to one skilled in the art using Stevenson. Izaki et al. is applied here for the same reasons as given in the previous office actions. Izaki et al. teaches the silver nitrate activating solution can be acidic and is aqueous, having a pH in the claimed range (Col. 5, lines 30-49; Example 1). It would have been an obvious modification to one skilled in the art to use an aqueous acid bath of silver nitrate having the claimed pH in Stevenson, with the expectation of providing the desired activation, since such silver bath conditions typical for the activation of plastic substrates for electroless deposition, as shown by Izaki et al.

Stevenson does not teach that the conditioner contains a surfactant. Izaki et al. teaches that the conditioner contains a cationic surfactant (Col. 5, lines 17-21). It would have been obvious to one skilled in the art to include a surfactant, such as that of Izaki et al., in the conditioner of Stevenson, with the expectation of providing the desired substrate conditioning and preparation for metal plating, since the same is conventional in the art for conditioners used to prepare non-conductive plastic substrates for metal plating, as shown by Izaki et al., and as desired by Stevenson.

Stevenson does not teach the claimed concentration of stannous and silver salts.

Stevenson is silent as to the concentrations of the stannous and silver salts. Therefore, it would

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have been obvious to one skilled in the art to use a conventional concentration of stannous and silver salts to sensitize and activate the non-conductive surface for electroless plating. Izaki et al. teaches the use of stannous and silver salts having the claimed concentrations (Col. 5, lines 30-49; Example 1). It would have been obvious to one skilled in the art to use the claimed concentrations of stannous and silver salts in Stevenson, with the expectation of providing the desired sensitizing and activating, since such concentrations are typical in the art for sensitizing and activation of non-conductive surfaces for electroless plating, as shown by Izaki et al.

Stevenson does not specifically teach that the electroless nickel plating solution is free from formaldehyde. However, formaldehyde is not taught as a constituent of the electroless plating bath of Stevenson and thus would indicate the bath as being free of formaldehyde.

Stevenson does not teach the pH of the electroless plating bath. Stevenson is silent as to the pH of the nickel plating bath. Therefore, it would have been obvious to one skilled in the art to use a conventional pH of electroless nickel plating. Izaki et al. teaches that the electroless nickel plating can occur at the claimed pH (Example 1). It would have been obvious to one skilled in the art to use the claimed pH for the electroless nickel plating in Stevenson, with the expectation of providing the desired electroless nickel plating, since such a pH is typical in the art for electroless nickel plating of non-conductive surfaces, as shown by Izaki et al.

5. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson and Izaki et al. as applied to claim 5 above, and further in view of Pendleton.

Stevenson and Izaki et al. do not teach that the conditioner contains a reducing agent. Pendleton teaches conditioning a non-conductive plastic substrate for metal plating, where the conditioner contains a reducing agent in the form of an acid salt (Col. 7, lines 35-54; Col. 9, lines

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28-40). It would have been obvious to one skilled in the art to include a reducing agent, such as that of Pendleton, in the conditioner of Stevenson and Izaki et al., with the expectation of providing the desired substrate conditioning and preparation for metal plating, since the same is conventional in the art for conditioners used to prepare non-conductive plastic substrates for metal plating, as shown by Pendleton, and as desired by Stevenson and Izaki et al.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson and Izaki et al. as applied to claim 5 above, and further in view of Stamp et al.

Stevenson and Izaki et al. do not teach that the conditioner contains a complexing agent. Stamp et al. teaches conditioning a non-conductive plastic substrate for metal plating, where the conditioner contains a complexing agent (Col. 8, lines 31-50; Col. 11, lines 1-8). It would have been obvious to one skilled in the art to include a complexing agent, in the conditioner of Stevenson and Izaki et al., with the expectation of providing the desired substrate conditioning and preparation for metal plating, since the same is conventional in the art for conditioners used to prepare non-conductive plastic substrates for metal plating, as shown by Stamp et al., and as desired by Stevenson and Izaki et al.

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Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Barr whose telephone number is 703-305-7919. The examiner can normally be reached on Monday-Thursday 6:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 or 703-305-5408 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Michael Barr
Primary Examiner
Art Unit 1762

MB
December 30, 2002